

REMARKS/ARGUMENTS

I. Introduction:

The courteous telephone interview granted applicants' undersigned attorney on January 24, 2008 by Examiner Luan Van is hereby respectfully acknowledged. The arguments and proposed amendment discussed in the interview are set forth below.

Claims 1, 10-12, 19-21, and 25-26 are amended, claims 9 and 13 are canceled, and claims 52-53 are added herein. Claims 29-47 have been withdrawn from consideration. With entry of this amendment, claims 1-8, 10-12, 14-28, and 48-53 will be pending.

II. Claim Rejections – 35 U.S.C. 112:

Claim 1 has been amended to include the limitations of claim 9. More specifically, claim 1 has been amended to specify “a holder block having a plurality of openings” to distinguish these openings from the openings of the mask, as suggested by the Examiner.

III. Claim Rejections – 35 U.S.C. 103:

Claims 1-5, 9, 10, 12-21, 23, 27, 28, and 48-50 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,468,410 (Donne) in view of U.S. Patent No. 6,423,193 (Miller et al.).

Donne discloses an apparatus for synthesis and characterization of electrode materials. As shown in Fig. 2, the apparatus includes a base 10 configured to support a plurality of electrode holders 12. Working electrodes 22 are affixed to the electrode holders by screwing working electrode 22 into bore 24 of the holder.

Working electrode 22 is counter-sunk into the electrode holder so that the working electrode can be exposed to an electrolysis bath during deposition of a material on a top surface of the working electrode. In rejecting the claims, the Examiner refers to the base of Donne as a mask.

As noted by the Examiner, Donne does not disclose a mask having a plurality of openings configured for exposing only a portion of an end surface of each of the working electrodes, as set forth in claim 1. As shown in Fig. 2, the base exposes the entire end surface of the working electrode. Even if the electrode 22 is somehow positioned such that it is flush with the holder 12 or base 10, the entire end surface of the insert would still be exposed. The base 10, therefore, does not operate as a mask.

The Miller et al. patent is directed to nitrogen doped carbon electrodes. Miller et al. utilize masking of a substrate to form a microelectrode array. Fig. 1 illustrates an electrode 10 having a film or layer 12 deposited on a substrate 14. During deposition, the substrate surface can be masked to define an electrode comprising an array of microelectrodes as shown in Fig. 1. The masking material is used only in forming the electrodes. Once the electrodes are formed, the material is removed. Lithographic deposition or other techniques may be used for masking the silicon substrate surface prior to deposition of the electrode layer. Miller et al. also note that rotating disk electrodes can be formed without using a masking process. ("The substrate sheet coated with the film can be cut into desired shapes used in the preparation of rotating disk electrodes (RDE) . . ." (col. 5, lines 44-46)).

Claim 1 has been amended to specify that the mask comprises a plate attached to a front surface of the holder block, as generally set forth in original claim 13. As described above, Miller et al. apply a thin layer of material to an existing substrate prior to forming the electrode. In contrast, claim 1 requires a mask comprising a plate having a plurality of openings and attached to a front surface of a holder block. In rejecting original claims 9 and 13, the Examiner refers to ring 50A in Fig. 3 of Donne as a holder block. Applicants respectfully submit that Donne does

not show or suggest a holder block comprising a plurality of openings for receiving an array of working electrodes. Instead, Donne shows a spacing ring 50A and lid 50B defining a housing for an electrochemical cell. As described at col. 9, lines 6-32, item 50 in Fig. 3 of Donne is a housing mounted on base 10 to define an electrochemical cell.

Applicants' system is particularly advantageous in that it allows only a portion of the working electrode to be exposed so that processes can be performed on only the exposed portion. For example, the openings may be sized to expose only an insert of the working electrode so that a coating can be applied to the insert without being applied to a body of the electrode.

Accordingly, claim 1, and the claims depending therefrom, are submitted as patentable over Donne and Miller et al.

Claims 2 and 3 are further submitted as patentable over the cited references because Miller et al. specifically note that the masking process is used with low temperatures used in formation of the electrode (col. 5, lines 27-31).

Claims 16 and 17 are further submitted as patentable over Donne and Miller et al., which do not show or suggest a cell sized for receiving at least a portion of the array of working electrodes installed in the device. The base of Donne is not received in the cell (Fig. 3). Miller et al. show a single electrode 24 inserted into a cell in Fig. 2. There is no device comprising a holder block and mask inserted in the cell.

With regard to claims 18-21, the Examiner states that it would have been obvious to one having ordinary skill in the art to have modified the shape of the openings. However, applicants note that it would not have been obvious to use tapered openings as set forth in the claims, in the masking process described in Miller et al. Accordingly, claims 18-21 and 25 are further submitted as patentable over the cited references.

In rejecting claims 22, 23, 24, and 27, the Examiner cites Donne and U.S. Patent Nos. 2,841,548 (Perlman) and 5,120, 421 (Glass et al.) and refers to various bases, holders, or detectors formed from materials set forth in the claims. However, none of the cited references disclose a mask formed from the claimed materials. As noted above, Miller et al. teach a lithographic deposition process and do not teach a mask structure made from the materials set forth in the claims.

Claim 48 is directed to a system comprising, inter alia, a high temperature synthesis device for preparing an array of electrolytic surfaces of working electrodes each comprising a body and an insert supported by the body. The device comprises a holder block having a plurality of openings formed therein for receiving the array of electrodes positioned such that a portion of the insert is exposed for forming the electrolytic surface thereon without exposing an end surface of the body located adjacent to the exposed portion of the inert.

As noted by the Examiner, Donne does not disclose a holder block having a plurality of openings for receiving working electrodes positioned such that a portion of an insert is exposed without exposing an end surface of a body of the working electrode, as set forth in claim 48. As discussed above, Miller et al. disclose a masking process used in forming an array of electrodes (microelectrodes). Miller et al. do not show or suggest a device having a plurality of openings formed therein for receiving an array of working electrodes positioned such that only a portion of the electrode is exposed. In contrast, Miller et al. apply a material to a substrate to mask a portion of the substrate prior to deposition of the electrode material. Thus, there are no openings formed for receiving an array of electrodes and masking a portion of the electrodes. The masking material is only applied to the substrate in order to form the microelectrodes. Furthermore, since the masking material of Miller et al. is removed after the microelectrodes are formed, there is no masking of an array of electrodes such that a portion of an electrode is not exposed during processing of the electrode.

Accordingly, claim 48, and the claims depending therefrom, are submitted as patentable over the cited references.

IV. Conclusion:

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



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